

## LESSON PLAN

**Name:** Natalie Kaufman and Emily Purnell

**Date:** 02/29/12

**Subject:** The Water Cycle

**Grade Level:** 4th

**Length of Lesson:** 67 minutes

**Lesson Plan Title:** The Wondrous Water Cycle

**Content Standard:** 8.0 the Atmosphere

**Materials & Resources:** *Per Student:* Paper plates (just the inner circle), brads, arrows (made of paper) or paper clips *Per Group:* Clear plastic cup  $\frac{3}{4}$  full of water, shaving cream, food coloring, crayons or markers, pictures of the water cycle, piece of construction paper. "The Magic School Bus at the Waterworks" by Joanna Cole

### PLANNING

#### Unit Goal(s):

GLE 0407.8.1 Recognize the major components of the water cycle.

#### Learning Objectives:

The Learner Will:

- Explore how the water cycle works
- Understand that the water cycle has three essential parts

#### Checks for Understanding:

90407.8.1 Prepare a model that illustrates the basic features of the water cycle.

#### SPI:

SPI 0407.8.1 Identify the basic features of the water cycle and describe their importance to life on earth

#### Enduring Understandings:

##### CONCEPT(S):

- Evaporation: When a liquid changes into a vapor or gas
- Condensation: The process of a gas turning into a liquid
- Precipitation: The falling of water from the sky in the form of rain, sleet, hail, or snow.
- Transpiration: The process by which plants give off moisture into the atmosphere.
- Vapor: A gas formed from something that is usually a liquid or a solid at normal temperatures. Clouds are made of condensed vapor.

#### ESSENTIAL QUESTIONS:

**Remembering:** What is evaporation? What is condensation? What is precipitation?

**Understanding:** Explain how water goes from the ocean to a cloud. Describe the different types of precipitation

**Applying:** Illustrate something that happens during each part of the water cycle.

**Analyzing:** Compare and contrast evaporation and condensation.

**Evaluating:** How does the water cycle effect your life and why?

**Creating:** Draw the water cycle on a sheet of paper and label each part describing what happens in each.

### **Interdisciplinary Connections:**

#### Math:

Students will collect rainfall outside of the classroom every Friday for 1 month. The students will use this data and make a scatter plot or a line graph with it.

GLE 0406.5.1 Collect, record, arrange, present, and interpret data using tables and various representations.

SPI 0406.5.1

Depict data using various representations (e.g., tables, pictographs, line graphs, bar graphs).

#### Social Studies:

We could discuss how the water cycle works and what areas of the world get the most rain and what areas get the least amount of rain. We will use globes and maps to help us understand.

Learning Expectation:

3.01 Understand how to use maps, globes, and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

#### Language Arts:

Have the students write about how the water cycle affects their life. They should be knowledgeable about the parts of the water cycle and reference them in their writing.

GLE 0401.3.1 Write for a variety of purposes and to a variety of audiences.

SPI 0401.3.1 Identify the purpose for writing (i.e., to entertain, to inform, to share experiences).

SPI 0401.3.2 Identify the audience for which a text is written.

## **INSTRUCTION**

### **INTRODUCTION or Anticipatory Set      Time: 15 min.**

#### **Engage:**

Part I: Have the students try and guess what the topic is. Give them clues such as, "could be in high in the air, or I could be deep in the ground. You find me in the ocean. Maybe you'd even travel to the North or South Pole and see me there. You also see me here in school every day, and at home, too. Any ideas?" If they still can't think of the answer tell them that it is what makes rain (5 min.)

Part II: After the students have guessed that we will be talking about water. Clarify that we will talk about the water cycle and how it moves from place to place. Read the book "The Magic School bus at the Waterworks" by Joanna Cole. This is a fun way to introduce the topic. (10 min. )

### **BODY (Activities & Practice)**

**Activities**      **Time:** 37 minutes

Explore I: (10)

On each group of desks, have a can of shaving cream, a cup of water, and 1 thing of food coloring. Tell the students that since today we are going to be talking about the water cycle we want to see if they can make it rain. Tell the students that in their group they need to use all of the ingredients and make it rain into the cup.

Explain I: (15 minutes)

After allowing students to explore making rain in a cup, allow them to explain what they did and how it worked. Explain to the students that we will see how water moves from place to place. Use the website [http://teacher.scholastic.com/activities/studyjams/water\\_cycle/](http://teacher.scholastic.com/activities/studyjams/water_cycle/) to show a great video to help students actually see the water cycle in action. Explain to the students that we will be making a type of graphic organizer. They need to separate their plate into 3 equal parts. Each part will represent a different part of the water cycle. Pause the video after Precipitation and have the kids fill out 1/3 of their plate. Start the video back up. Pause it after Transpiration and fill it out another 3<sup>rd</sup> of the plate. Watch the rest of the video and have them fill out the last 3<sup>rd</sup> of the plate about Condensation.

**F.A.C.T/ # 59 Ten-two** (2 minutes)

Ten min. Of talking and two min of discussing with a neighbor. Have the students talk about the video and what they learned by watching it and discussing it.

Extend: (10 minutes)

To extend this activity, ask the students to write a story from the perspective of a water droplet. The students need to write about what happens to the water vapor using the words evaporation, condensation, and precipitation.

Evaluate:

**F.A.C.T. # 54 Sequencing** **Time:** 5 minutes

Put pictures of each part of the water cycle on construction paper. Have the students work in groups of two and have them put the water cycle in order. The teacher will walk around and see if anyone is having trouble.

**CLOSURE Time: 10**

After the extend portion of the class, we will go over a powerpoint with 5 questions on it. The purpose of this powerpoint is to review the material and see what they still need help with. The students will answer the questions on their own sheets of paper. After they have answered all of the questions we will go back to the beginning and answer them together as a class, giving explanations where necessary.

1. What are the 3 critical processes that are part of the water cycle?
2. Moisture that falls to the ground in the form of sleet, rain or snow is called what?
3. When condensation occurs, water changes from...
4. In a diagram of the water cycle, evaporation would be depicted as...
5. Water droplets rise into the air and form clouds. What is this process called?

Watch the Bill Nye the Science Guy video on the water cycle.

<http://www.youtube.com/watch?v=BayExatv8IE>

This will finish up the lesson and wrap up the ideas in a really fun way that the students will enjoy.

**ASSESSMENT**

**Evaluation:**

Informal: Walk around and check to see if the students are understanding what they are doing. The questions that we ask on the powerpoint are going to be part of our informal assessment.

Formal: Take up the papers that the students sequenced the water cycle on (FACT 54). This will be graded and handed back to the students.

**Alternative and/or Supplemental Activities/Extensions:**

**E-Learning:**

1. The water cycle game:

This gives the kids a chance to interact and actually participate in the water cycle

<http://apps.southeastwater.com.au/games/se-water-cycle.swf>

2. Droplet and the Water Cycle

This is a really fun game where you answer questions about the water cycle and help the droplet get through the game.

<http://kids.earth.nasa.gov/droplet.html>

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**Differentiation – Accommodations for Individual Learners:**

Bodily-Kinesthetic: The kids are hands on throughout the lesson with the water activities

Intrapersonal: The kids will write from the perspective of a water droplet. They will do this by themselves.

Interpersonal: The kids will work in groups to understand the water cycle.

Logical-Mathematical: The students will sequence the order of the water cycle.

Spatial: The students will draw their own water cycle.

**References:**

[http://teacher.scholastic.com/activities/studyjams/water\\_cycle/](http://teacher.scholastic.com/activities/studyjams/water_cycle/)

<http://www.k6edu.com/4thgrade/science/the-water-cycle.html>

<http://www.youtube.com/watch?v=BayExatv8IE>

<http://pinterest.com/pin/113364115590078249/>